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AUTHOR DuFrene, Debbie D.; Lehman, Carol M.
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ABSTRACT

This paper suggests methods for incorporating cooperative learning into the college classroom, including both short-term and long-term activities. It stresses the importance of self-directed work teams in the work environment and the contribution of cooperative learning in the college classroom to building team work skills. Cooperative learning is defined and evidence for its efficacy is summarized. Suggestions for deciding group size and composition are offered. An explanation of short-term activities notes that such activities may last from one to two class periods and include introductory activities, intermittent activities, focused discussion/activity, explanation pairs (in which pairs of students explain difficult concepts to each other), and closure activities. In contrast, long-term activities involve the completion of a paper, project, or report over multiple class periods and should involve peer assessment. The instructor wishing to implement cooperative learning techniques is urged to do some background reading, select popular student topics, and initially limit team size to two students. (Contains 27 references.) (NAV)

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ACHIEVING SELF-DIRECTED WORK TEAM SKILLS THROUGH COOPERATIVE LEARNING

by

Debbie D. DuFrene
Box 13060
Stephen F. Austin State University
Nacogdoches, TX 75962
Phone: 409-468-1616
Email: ddufrene@sfasu.edu

and

Carol M. Lehman
P.O. Drawer MG
Mississippi State University
Mississippi State, MS 39762
Phone: 601-325-1959
E-mail: cml1@ra.msstate.edu

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Debbie D. DuFrene, Stephen F. Austin State University
Carol M. Lehman, Mississippi State University

Abstract

Self-directed work teams are central to the changes that are occurring in organizations. Workers need preparation in how to function successfully in the team environment, and institutions of higher education have a responsibility to provide such an education to students. One way to incorporate team building into courses is through cooperative learning. While cooperative learning offers numerous potential benefits for students, instructors may not be aware of how to implement it. This paper presents methods for incorporating cooperative learning into the college classroom, including both short-term and long-term activities and gives suggestions to instructors for incorporating cooperative learning.

Importance of Self-Directed Work Teams to Organizations

Self-directed work teams are central to the changes that are occurring in organizations that are striving for continued improvement and a more favorable competitive position (Ray & Bronstein, 1995; Weis, 1992; Wagenheim, 1992). The achievement of such challenging goals is greatly facilitated by tapping into the vast, under-utilized resource of knowledge and talent within the organization's workforce (Fisher, 1993). Furthermore, most models of the "organization of the future" are premised on teams as the primary performance unit (Felts, 1995). Because the American culture, however, has been largely built on individualism and diversity, teamwork often does not easily emerge.

A grouping of people is not necessarily a team, and newly formed teams are not automatically self-directing (Caudron, 1993). Individuals typically need extensive preparation and training in how to function successfully as part of a team in this new arena (Zuidema & Kleiner, 1994). Institutions of higher education are recognizing a responsibility to prepare graduates for the changing work environment which they will encounter (Ventimiglia, 1994).

Effectiveness of Cooperative Learning as an Educational Strategy

One way to incorporate teamwork and leadership skills development into courses or programs of study is to utilize cooperative learning activities for task achievement (Lyons, 1993). Cooperative learning may be defined as a structured, systematic instructional strategy in which small groups work together toward a common goal (Cooper, 1991). Five basic elements of cooperative learning are (1) positive interdependence, (2) face-to-face promotive interaction, (3) individual accountability and personal responsibility, (4) frequent use of interpersonal and small group social skills, and (5) frequent, regular group processing of current functioning (Johnson & Johnson, 1994). Cooperative learning differs from collaborative learning in its emphasis on highly-structured techniques for ensuring positive interdependence within groups and its insistence on individual accountability rather than undifferentiated group grading (Cooper, 1991).

Over 600 studies have supported the efficacy of cooperative learning and emphasizes the role that faculty play in creating the experience (Johnson, 1992). Cooperative learning has been presented as a technique that helps raise the achievement of all students, helps build positive relationships among students, and gives students experiences necessary to healthy social, psychological, and cognitive development (Johnson, 1994; Slavin, 1994; Sharan & Sharan, 1992). Cooperative learning encourages students to develop their own resources for learning (Petonito, 1991) and to reflect regularly and specifically on their own learning, thus valuing their own learning more (Andrews, 1992). Cooperative learning replaces the mass-production, competitive

organizational structure of most classrooms and schools with a team-based, high performance organizational structure (Johnson, 1994).

Cooperative learning offers several positive outcomes through the increase in (1) member confidence, (2) student knowledge through exchange of ideas, (3) creativity through shared responsibility, and (4) opportunities for people to get to know and understand others in work settings Limitations have also been cited, which include (1) uneven contributions of group members, (2) differing knowledge levels of group participants, 3) difficulty of evaluating performance and assigning group grades, and (4) inability of the instructor to effectively assume the role of facilitator (McElhinney & Murk, 1994).

Three common approaches to cooperative learning include: (1) formal learning groups which last for various lengths of time to complete a specific task or assignment; (2) informal learning groups which are temporary, ad hoc groups which last for only one discussion or one class period; and (3) base groups which are long-term, heterogeneous cooperative learning groups with stable membership whose primary responsibility is to provide each student the support, encouragement, and assistance needed to progress academically (Johnson, 1992).

Instructor's Role in Cooperative Learning

The instructor's role in a cooperative learning environment differs from the traditional "teaching" model, since team management skills require different teaching methods (Wagenheim, 1992). Instructors may experience difficulties in letting go of a view of teaching that assumes that there is one "pedagogically correct" way of running a classroom (Lasley, 1993). According to Johnson (1994), the teacher's role in implementing cooperative learning includes: (1) pre-instructional decisions such as selection of instructional material and objectives, assigning students to groups, arranging the classroom, and assigning roles; (2) taskwork and teamwork which includes explaining the academic task, structuring positive interdependence, and specifying desired behaviors;

(3) executing the cooperative lesson, which includes monitoring students' behavior and providing closure; and (4) post-lesson activities, such as evaluating the quality and quantity of learning and analyzing group effectiveness. Trzyna and Batschelet (1990) stressed that the primary responsibilities of the instructor are to provide training in leadership and group dynamics and to inform students about the ethical complexity of their task and standards for assessing group performance.

Purpose of the Study

While cooperative learning on the elementary and secondary levels has been relatively well studied, research as to the effectiveness of the technique in higher education settings has only recently gained attention (Cooper, 1990). Colleges and universities are focusing on the need to involve students more in the learning process, yet one impediment to cooperative learning is that instructors may experience difficulties in letting go of a view of teaching that assumes that there is one pedagogically correct way of running a classroom (Lasley, 1993). Team-building requires teaching methods that differ from the traditional lecture/individual student assignment approach. The purpose of this paper is to present methods, which have been successfully used, for incorporating cooperative learning into the college classroom. Specific short-term activities as well a longer project activity will be discussed. Suggestions will be given for the instructor in facilitating cooperative learning.

Findings

Determining Cooperative Learning Units

Group or team composition may be decided in a variety of ways, ranging from the students being allowed to choose their own teams to the instructor employing any of a variety of strategies for placing students together. While students often prefer selecting their own teams, some benefits emerge when students are assigned to groups. A primary

advantage gained is experience in working with a diverse group since the instructor can assure that groups are diverse in terms of gender, field of study, age, ethnicity, experiences, academic success, etc. (Johnson, Johnson, & Smith, 1991). Assigned groups also more closely approximate workplace situations where employees seldom get to choose their team members.

Numerous methods can be used to form heterogenous groups. One method that produces numerous random assignments and takes little effort is the "card deck" method (Brightman, 1994). In this method, the instructor passes a deck of cards to the class, with each student taking one. For classes larger than 52 students, a second deck of cards can be used with a dot beside the number on each card or a second deck with a different background; for instance, for a class of 100, two decks would be distributed with all black tens removed. Similar adjustments can be made for classes smaller than 52 students. Each student keeps his/her assigned card for the duration of the course.

Cards can be combined throughout the term in any number of ways to produce groups of differing size as needed. When groups of four are needed, for example, instruct all "four of a kind" card holders to form a team. For student interaction in "pairs," instruct the read cards and the black cards of "one kind" to form a team; for example, five of diamonds and five of hearts would form a pair. Other combinations can be used to vary team membership and size. Roles and responsibilities can also be rotated frequently; for example, to ensure that each group member contributes, the instructor simply announces that only hearts may discuss a problem for a specified time, followed by diamonds and so on. Group roles are assigned for each activity by simply denoting a card. (For example, spades are team leaders, hearts are reporters, and diamonds are recorders, etc.) In paired discussions, the teacher announces roles after allowing the entire class to think about the problem; for instance, hearts and clubs will explain the concept while diamonds and spades will listen and prompt as necessary.

Short-Term Cooperative Learning Activities

Short-term cooperative learning activities typically last from one to two class

periods. Johnson, Johnson, and Smith (1991) outline several cooperative learning strategies that can be used at the beginning of the class period to create a supportive environment for learning, intermittent activities that reinforce a class lecture, and activities that bring closure to the lecture and help students integrate what they have learned. The instructor selects an appropriate cooperative learning strategy based on the nature and goals of the class. Short-term activities appropriate to various business courses are presented for illustration purposes.

Introductory activities. Focused discussions and progress checks can be used to set a mood conducive to learning (supportive environment) by placing attention on the major points to be covered in the lecture. The following activities illustrate this strategy:

* The instructor describe a survey of CEO's that identified the primary skills these CEOs believed to be critical to their successful climb up the corporate ladder. Students are allowed one minute to think silently about the problem, which is followed by group brainstorming. The "recorder" of each group compiles a list of the skills identified from the brainstorming; the group "leader" facilitates the group's consensus on the top two skills executives listed in the survey; and the "reporter" reports the group's answer during the class discussion that follows the activity. [The CEOs agreed unanimously on the two top skills: (1) integrity, and (2) interpersonal skills--of which effective communication is a paramount part. Other skills mentioned included management/leadership skills, receptiveness to new ideas, and commitment to life-long learning (Smith & Savorian, 1991).] Student groups should be fairly accurate in their answers; if so, discuss the concept of synergy.
* Provide two or three questions that direct students' attention to the major points to be discussed during the lecture. Have them briefly discuss and possibly report.
* Administer a progress check (questions from study guide, for example) to be completed individually. Then allow students to compare answers with a partner or the entire group. They may be instructed to identify the page

number(s) where correct answers can be found. This progress check can be ungraded, or a group grade can be assigned. The grade recorded is the average of the student's individual grade and the grade earned by the group. The weight of the individual and group grade can vary throughout the semester at the instructor's discretion.

Intermittent activities. Intermittent activities are conducted throughout the term, following class discussions to reinforce concepts presented or to allow students to apply or integrate the concept with previous learning. Following 10-15 minutes of group discussion on the topic, the instructor initiates class discussion, involving students who would not otherwise contribute during a traditional lecture/discussion.

Focused discussion/activity. These activities, conducted in quads or pairs, might occur at any appropriate time in the term; some examples are as follows:

* Discuss a case involving an ethical dilemma and apply an ethical framework to arrive at a decision that does not compromise personal values of the group.
* Discuss critical-thinking questions related to a concept presented. In business communication, for example, students might analyze a poorly written document in the following ways: evaluate the placement of the main idea and details, comment on the value of specified sentences, evaluate whether an international audience could understand all phrases, and generate an original idea to be developed for an opening or ending paragraph.
* Discuss the point(s) that impressed the students most in a presentation made by a guest speaker. Then, use these points to write a specific, sincere thanks to the speaker, either individually or as a group.
* Discuss factors that indicate corporate responsibility and identify a recognizable organization that exhibits those characteristics.

Explanation pairs. After a difficult concept has been presented, students are instructed to work in pairs. The "speaker" explains the concept presented in his/her own words. The "listener" listens actively and provides friendly prompting as necessary. The

students reverse roles to allow both students the opportunity to verbalize the concept. Examples include:

* Discuss the role of self-directed work teams in a total quality management environment.
* Define *ethics* in your own words.
* Distinguish between the LIFO and FIFO methods for inventory accounting.
* Explain the concept of materiality in the presentation of audited financial statements.
* Describe three ways by which the Federal Reserve Board can expand the money supply and three ways by which it can reduce it.

Closure activities. According to Menges (1988), research documents that the average student has immediate recall of 62 percent of the lecture but that the recall declines to 45 percent after three to four days and to 24 percent after eight weeks. If students were required to take an examination immediately following a lecture (thus systematically reviewing what they had just learned), they retained almost twice as much information after eight weeks. To increase the retention of material presented in class, the instructor might allow at least four or five minutes for cooperative learning activities that require students to summarize and integrate what they have learned:

* Cooperative writing pairs--students are instructed to summarize the main point(s) they learned in the lecture, make a judgment about the theoretical and practical significance of the ideas, record any unanswered questions they have, or discuss anything they know beyond the material covered.
* Note-taking pairs--each partner in turn summarizes his/her notes to the other who adds and corrects. Alternately, the instructor might ask students to agree on the three key points the instructor made, the most surprising (interesting) thing the instructor said, or other variations.
* Jigsaw groups--each student is assigned a part of a lesson on which to become an expert. Each member prepares his/her portion of the task and then teaches the information to the others in the jigsaw group. The group

reaching a certain criterion level or having a high improvement score should be recognized (Dennee, 1991)

Long-Term Cooperative Learning Activities

Long-term cooperative learning activities often focus on the completion of a research paper, project, report, or other similar assignment. Cooperative teams are typically formed to accomplish an extended project which may take several weeks or the entire course term. While ideal team size is debatable, many ascribe to the "seven plus or minus two" rule as a guideline. Factors that affect the optimal team size include the interdependence of the tasks involved, the experience of the team members in cooperative projects, and the time available for team member interaction.

Students without previous long-term cooperative learning experiences typically need some instruction into group functioning such as characteristics of effective groups, constructive as well destructive roles and tasks, conflict resolution, etc. Sufficient class lecture and discussion should be devoted to group dynamics at the onset and/or throughout the process of the long-term activity. To aid in the development of group cohesion and to establish accountability to the instructor, each team should be expected to develop its own "group contract" which reflects agreed upon expectations for team member. Teams may also be required to prepare minutes of meetings, recording such thing as what was accomplished and by whom, the team's agreed upon continued plan of action, and any difficulties experienced and how they were resolved. Progress report memos may also be required of each team at designated intervals, in order that the instructor stay apprised of the status of the group's, as well as each member's, efforts and accomplishments. A progress memo should minimally include discussion of the steps taken thus far in completing the project, those that remain, assignment of various duties and responsibilities to particular members, and target dates for completion of various tasks. This activity assures that each team has adequately addressed the division of labor and a timetable for project completion. Necessary intervention and assistance can be offered. The instructor may have teams submit portions of their projects, as they are

completed, for preliminary review and feedback. The instructor may wish to meet with each team periodically to discuss progress, questions, and problems. Such meetings may occur during certain class periods or outside of normal class times.

Some form of peer assessment should be a part of a long-term cooperative learning activity. Members may be asked to periodically assess each team member's performance in terms of the effort, quality and quantity of contribution made by the individual. The instructor should keep students focused on the idea that such a procedure involves assessment of a team member's performance, not an assessment of the team member as a person. Such responsibilities, though not always welcomed by students, help prepare them for experiences involving evaluation of peers and subordinates in the workplace. The instructor will want to communicate with team members who receive less than favorable "scores" from their teams to discuss with them appropriate behaviors and ascertain their level of commitment to the project. Many instructors give teams the right to "divorce" a member who fails to live up to the team contract. At the completion of the team project, team members should be required to submit an evaluation of their team members' contribution, including a self-evaluation. These evaluations can serve as a basis for the assignment by the instructor of an individual contribution grade for each student which would be added to the project grade earned by the team.

A useful way to aid students in assessing the benefits gained from a team experience is to assign the post-project memo. After completion of the team project, each student is asked to individually submit a memo that includes the following: (1) describes the strengths and weaknesses of his/her team and its performance, (2) notes what the student learned from the team experience (whether positive or negative), and (3) identifies what the student will do differently the next time he/she is part of a team. Positive comments as to what the student has learned include the following: "I realized that I am a leader." "I learned how to listen better to others and value their opinions." "I learned how to be more assertive with my views." Other comments focus on identification of areas for improving future team efforts: "I learned how important it is to plan." "I learned how scary it is to trust someone else to do something that counts for my grade." As to what

students would change in their next team assignment, comments include: "I will exert myself more as a leader." "I would require more meetings next time so that communication would be better." "I wouldn't change anything; my team functioned great!"

Summary and Application

Businesses are demanding that employees know how to work in teams. As many as 55 percent of Fortune 500 companies are using teams, and by 1999 that proportion will be as high as 90 percent (Fintel, 1994). Cooperative learning offers promise as a technique for ensuring that students actively create their own knowledge and work together to achieve shared learning goals. It is a way for students to acquire the personal skills that the business world requires. Educators from all disciplines are recognizing that cooperative learning can be one way to prepare students for the real world of work. One of the most difficult jobs facing the instructor is determining how to initiate cooperative learning. These suggestions should make the implementation easier:

1. Do some background reading in cooperative learning to become familiar with various strategies and applications. Some ideas will be more appealing and appropriate to one's course content and objectives (Bonwell & Eison, 1991).

2. In order to ease the transition from traditional teaching to team facilitating, consider adding cooperative learning through a simple structure before moving on to more complex activities (Kealy & Witmer, 1991).

3. Select subject matter in which all students can be involved and that allows different students to make different contributions (Dennee, 1991).

4. While the size of cooperative learning group will vary from activity to activity, a two- person team is suggested when students are learning to do group work (Dennee, 1991).

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